



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/576,614

04/21/2006

Naoki Takahashi

062427

4330

38834

7590

05/27/2009

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP
1250 CONNECTICUT AVENUE, NW
SUITE 700
WASHINGTON, DC 20036

EXAMINER

RUDE, TIMOTHY L

ART UNIT

PAPER NUMBER

2871

MAIL DATE

DELIVERY MODE

05/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,614	Applicant(s) TAKAHASHI ET AL.	
	Examiner TIMOTHY RUDE	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 24-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 24-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060421, 20060516, 20060620, 20060804</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of species C in the reply filed on 24 March 2009 is acknowledged. The traversal is on the ground(s) that the search would not be reduced. This is not found persuasive because the search is not largely relevant to finding all the species; it is relevant to the generic device. Searching and making a patentability determination on the elected species will not serve for a patentability determination of any of the non-elected species, unless the generic device is patentable, whereupon rejoinder would be forthcoming.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-21 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowley et al [Bowley] USPGPUB 2003/0063245 in view of Winker et al [Winker] USPAT 6,710,831.

As to claim 1, Bowley discloses [entire patent, especially [0097] and Figure 4] an optical element comprising: a polarizing element (A) [408], separating incident light into polarization to then emit light, and made of a cholesteric liquid crystal.

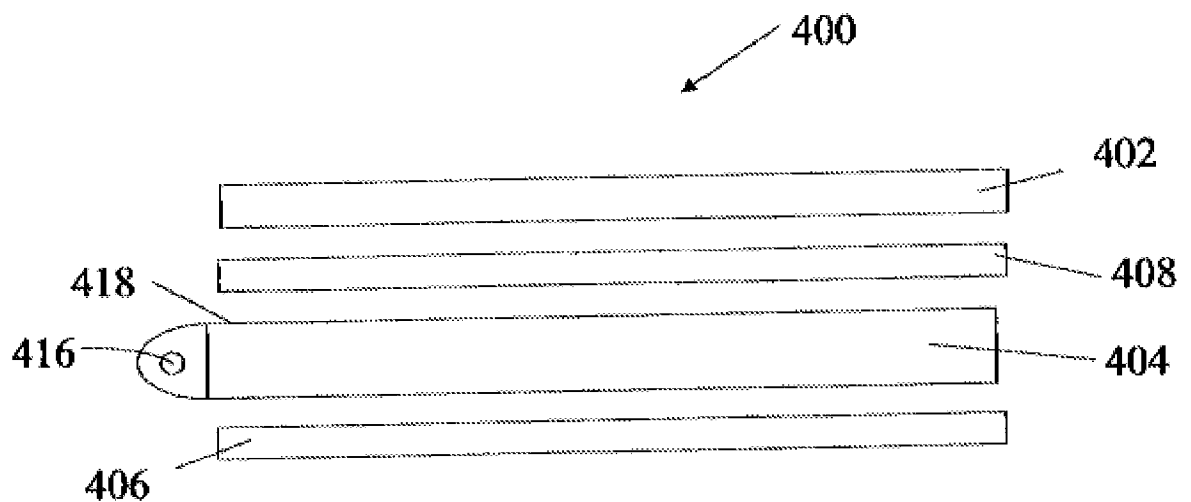


Fig. 4

Applicant's performance limitations wherein the polarizing element (A) has a distortion rate with respect to emitting light to incident light in the normal direction of 0.5 or more and a distortion rate with respect to emitting light to incident light at an angle inclined from the normal direction by 60 degrees or more of 0.2 or less, the polarizing element (A) has a function increasing a linearly polarized light component of emitting light as incidence angle is larger are characteristic of a broad band cholesteric polarizers like those of Bowley. Clearly a broad band cholesteric polarizer of reasonable quality will perform as claimed. Also, applicant has not applied 112 sixth paragraph, so the limitations are considered met due to the lack of enabling structure.

Bowley does not explicitly disclose a device with a linearly polarized light reflection polarizer (B) and transmitting linearly polarized light with one polarization axis

Art Unit: 2871

and selectively reflecting linearly polarized light with the other polarization axis perpendicular to the one polarization axis,

Winker discloses [col. 7, lines 47-57] a linear reflective polarizer in conjunction with a zero to half-wave retarder to serve as a tunable mirror for high brightness display.

Winker is evidence that ordinary workers in the art would find a reason, suggestion or motivation to add a linear reflective polarizer in conjunction with a zero to half-wave retarder to serve as a tunable mirror for high brightness display.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device with a linear reflective polarizer in conjunction with a zero to half-wave retarder to serve as a tunable mirror for high brightness display.

2. The optical element according to claim 1, wherein, in the polarizing element (A), the linearly polarized light component of emitting light increasing as incidence angle is larger has a polarization axis of linearly polarized light substantially perpendicular to the normal direction of a surface of the polarizing element [obvious performance not enabled by structural limitations].

3. The optical element according to claim 1, wherein, in the polarizing element (A), the linearly polarized light component of emitting light increasing as incidence angle is larger has a polarization axis of linearly polarized light substantially parallel to the

Art Unit: 2871

normal direction of a surface of the polarizing element [obvious performance not enabled by structural limitations].

4. The optical element according to claim 1, wherein the polarizing element (A) substantially reflects a non-transmission component of incident light [obvious performance not enabled by structural limitations].

5. The optical element according to claim 1, wherein a thickness of the polarizing element (A) is 2 μm or more [obvious dimension typical of current display devices, Bowley [0083] 5 to 10 microns].

6. The optical element according to claim 1, wherein a reflection band width of the polarizing element (A) is 200 nm or more [obvious/common to function within the visible light band per examples of Bowley].

7. The optical element according to claim 1, wherein the linearly polarized light reflection polarizer (B) is a grid type polarizer [obvious polarizer type will know as suitable in the art, MPEP 2144.07].

8. The optical element according to claim 1, wherein the linearly polarized light reflection polarizer (B) is a multilayer thin film laminate with two or more layers made of

Art Unit: 2871

two or more kinds of materials having a difference between refractive indices [obvious polarizer type will know as suitable in the art, MPEP 2144.07].

9. The optical element according to claim 8, wherein the thin multilayer laminate is a vapor-deposited thin film [obvious polarizer type will know as suitable in the art, MPEP 2144.07, Bowley teaches most all types are suitable [0044]].

10. The optical element according to claim 1, wherein the linearly polarized light reflection polarizer (B) is a multi-birefringence layer thin film laminate with two or more layers made of two or more kinds of materials each having a birefringence [obvious polarizer type will know as suitable in the art, MPEP 2144.07, Bowley teaches most all types are suitable [0044]].

11. The optical element according to claim 10, wherein the thin multilayer laminate is a stretched resin laminate with two or more layers containing two or more kinds of resins each having a birefringence [obvious polarizer type will know as suitable in the art, MPEP 2144.07, Bowley teaches most all types are suitable [0044]].

12. An optical element comprising a $1/2$ wavelength plate (C) sandwiched between the polarizing element (A) and the linearly polarized light reflection polarizer (B) in the optical element according to claim 1 [per Winker as combined above].

13. The optical element according to claim 12, wherein the $1/2$ wavelength plate (C) is a broad band wavelength plate working as an almost $1/2$ wavelength plate over the entire visible light band [per Winker as combined above].

14. The optical element according to claim 13, wherein the $1/2$ wavelength plate (C) has a front retardation values, which is expressed by $(n_x - n_y) \times d$, in the range of a $1/2$ wavelength. $\pm 10\%$ at wavelengths in the light source wavelength band (ranging from 420 to 650 nm), where a direction in which an in-plane refractive index is maximized is defined as X axis and a direction perpendicular to the X axis is defined as Y axis, where refractive indices in each axis directions are defined as n_x and n_y , respectively, and a thickness is defined as d (nm) light [obvious performance not enabled by structural limitations].

15. The optical element according to claim 12, wherein the $1/2$ wavelength plate (C) controls a retardation in the thickness direction and reduces a change in retardation caused by a change in angle light [obvious performance not enabled by structural limitations].

16. The optical element according to claim 15, wherein the $1/2$ wavelength plate (C) has an N_z coefficient, which is expressed by $N_z = (n_x - n_z) / (n_x - n_y)$, in a relation of $-2.5 < N_z \leq 1$, where a direction in which an in-plane refractive index is maximized is defined as X axis, a direction perpendicular to the X axis is defined as Y axis and a thickness

Art Unit: 2871

direction of the film is defined as Z axis, where refractive indices in each axis directions are defined as n_x , n_y and n_z light [obvious performance not enabled by structural limitations]. Please note that Applicant merely claims an optical element [for what purpose?], so naturally one of ordinary skill in the art knows to set the parameters of an optical element to most any range of values as suitable for the intended purpose [MPEP 2144.07].

17. The optical element according to claim 1, wherein a polarizing plate is disposed outside of the linearly polarized light reflection polarizer (B) so that the polarized light transmission axis of the linearly polarized light reflection polarizer (B) and the polarization axis direction of the polarizing plate coincide with each other [obvious arrangement to guide light in the desired way, e.g., normally white vs normally black].

18. The optical element according to claim 1, wherein layers are laminated with a transparent adhesive or pressure sensitive adhesive [obvious configuration will know as suitable in the art, MPEP 2144.07, Bowley teaches most all types are suitable [0044]].

19. A light condensation backlight system, in which at least a light source is provided for the optical element according to claim 1 [per Bowley Figure 5].

20. The light condensation backlight system according to claim 19, comprising a primary light condensing means condensing light in the angular range of ± 60 degrees

Art Unit: 2871

from the normal direction [very common in the art of backlights for displays in order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

21. The light condensation backlight system according to claim 20, wherein the primary light condensing means is a microprism sheet array disposed on the light source [very common in the art of backlights for displays (reference 3M products) in order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

24. A light condensation backlight system, in which at least a light source is provided for the optical element according to claim 12 [very common in the art of backlights for displays in order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

25. The light condensation backlight system according to claim 24, comprising a primary light condensing means condensing light in the angular range of ± 60 degrees from the normal direction [very common in the art of backlights for displays in order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

26. The light condensation backlight system according to claim 25, wherein the primary light condensing means is a microprism sheet array disposed on the light source [very common in the art of backlights (reference 3M products) for displays in

Art Unit: 2871

order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

27. A light condensation backlight system, in which at least a light source is provided for the optical element according to claim 17.

28. The light condensation backlight system according to claim 27, comprising a primary light condensing means condensing light in the angular range of ± 60 degrees from the normal direction [very common in the art of backlights for displays in order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

29. The light condensation backlight system according to claim 28, wherein the primary light condensing means is a microprism sheet array disposed on the light source [very common in the art of backlights for displays in order to direct most of the light towards the viewer for sake of efficiency, MPEP 2144.07].

30. A liquid crystal display, in which at least a liquid crystal cell is provided for the light condensation backlight system according to claim 28 [per Bowley].

2. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bowley in view of Winker as applied to claim 30 above, and further in view of Sahouani et al [Sahouani] USPGPUB 2003/0184862.

31. Bowley in view of Winker teach the device according to claim 3.

They do not explicitly disclose a device comprising a diffusing plate neither backscattering nor depolarizing laminated on the viewing side of the liquid crystal cell.

Sahouani teaches the use of a diffusing plate neither backscattering nor depolarizing [polarization maintaining [0053]] laminated on the viewing side of the liquid crystal cell to provide desired effects.

Sahouani is evidence that ordinary workers in the art would find a reason, suggestion or motivation to add a diffusing plate neither backscattering nor depolarizing [polarization maintaining [0053]] laminated on the viewing side of the liquid crystal cell to provide desired effects.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device with a diffusing plate neither backscattering nor depolarizing [polarization maintaining [0053]] laminated on the viewing side of the liquid crystal cell to provide desired effects.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY RUDE whose telephone number is (571)272-2301. The examiner can normally be reached on Increased Flex Time Program.

Art Unit: 2871

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nelms C. David can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TIMOTHY RUDE/

Primary Examiner, Art Unit 2871